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10/822,325	04/12/2004	Jae Sung Lim	SEMIRE-PA-US-11	2573
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OBER / KALER c/o Royal W. Craig 120 East Baltimore Street Baltimore, MD 21202			EXAMINER LU, ZHIYU	
			ART UNIT 2618	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/822,325

**Applicant(s)**

LIM ET AL.

**Examiner**

ZHIYU LU

**Art Unit**

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-19 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Paragraph 0039 of published application presents a confusing statement that contradicts with S130-S140 of Fig. 3. The statement "if a value of the delay time ( $D_{SERVICE}$ ) taken for the master to process is larger than a reference value ( $D_{TH}$ ), the master determines that it no longer can accept the slave to reject a call acceptance" confusingly states as accepting a call if the delay time is larger than the reference value.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 8-9 of claim 1, applicants claim "in case the service delay time is larger than the predetermined reference value, permitting a call acceptance", which is contradicts to the filed specification (S130-S140 of Fig. 3).

For examination purpose, the Examiner is taking Fig. 3 for interpretation of claim 1.

Claim 1 recites the limitation "the calculated delay time" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the number of a parked slave" and "the number of packet" in line 5. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujioka (US2002/0193073).

Regarding claim 17, Fujioka anticipates an apparatus (1 of Fig. 1) for communicating with seven or more terminals (2-11 of Fig. 1) in a Bluetooth system having a master and a plurality of slaves, the apparatus comprising:

a transceiver for transmitting and receiving a signal between the master and the slave (inherent in Bluetooth unit to transmit and receive);

a parking mode controller (inherent in Bluetooth unit to deal with park mode) for analyzing the signal received from the transceiver so as to control the number of a parked slave (e.g. parked member address as numbered), a data type and the number of packet (e.g. determining whether it is a access request packet and repeated access request packet), and a parameter necessary for a parking mode (e.g. access request address);

a pre-scheduling unit for analyzing the signal received from the transceiver so as to determine a service sequence, a sniff interval time (inherent in options to determine a sniff interval), and an active member address (paragraph 0073, where memory unit works logic circuit to assign service sequence and active member address); and

a controller for controlling the parking mode controller, the transceiver and the pre-scheduling unit such that the slave is activated according to the service sequence so as to perform the communication (inherent in Bluetooth unit to control Bluetooth functionalities).

Regarding claim 19, Fujioka anticipates the limitation of claim 17.

Fujioka anticipates wherein the parking mode controller controls parameters of the number of a beacon slot, the number of an access window, and the number of a slot per a window (inherent in Bluetooth park mode).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Hayashi et al. (US2003/0021288).

Regarding claim 1, Fujioka teaches a method for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves (Fig. 1, where a master communicates with more than seven slaves), the method comprising the steps of:

checking an active member address to be allocated to a new slave such that the master establishes a communication connection with the slave (inherent in Bluetooth such as access request);

in case the active member address remains, allocating the remaining active member address to the slave (inherent in establishing Bluetooth connection);

allocating a sniff interval time and the active member address to each of the slaves according to the service sequence, and converting the slave allocated and given the sniff interval time and the active member address to be in a sniff mode (paragraphs 0073, 0076-0079); and

waking-up the slave of the sniff mode at the sniff interval time such that the active member address is used to complete the communication with the master and return the active member address (paragraphs 0073, 0076-0079).

Note that in the embodiments of Fujioka, active member address equipped slaves (including slaves in active mode and sniff mode) are swapped with parking slaves according to predetermined service sequence based on FIFO record and received access request messages stored in memory.

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But, Fujioka does not expressly disclose in case the active member address does not remain, calculating a service delay time to compare the calculated delay time with a predetermined reference value; in case the service delay time is larger than the predetermined reference value, permitting a call acceptance, and in case the service delay time is smaller than the predetermined reference value, determining a service sequence with respect to a predetermined reference according to the number of the slave calculated at a pre-scheduling duration.

Hayashi et al. teach a dynamic call connection scheme where an average delay time (obviously calculated) is compared with a predetermined threshold when a new call request is received, wherein the call is rejected if delay time is longer than the predetermined threshold (Fig. 8, paragraph 0097). So, it would have been obvious to one ordinary skill in the art to recognize that the same scheme can be applied in Bluetooth connection wherein the delay time can be calculated based on queued services and/or access requests in memory of Fujioka.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate calculating service delay to determine whether to accept a new call connection taught by Hayashi et al. into the method of Fujioka, in order to limit increase in service delay.

Regarding claim 2, Fujioka and Hayashi et al. teach the limitation of claim 1.

Fujioka teaches wherein the service sequence is determined in a sequence of receiving an access request message (paragraphs 0073, 0076-0079).

Regarding claim 3, Fujioka and Hayashi et al. teach the limitation of claim 1

Fujioka teaches wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data (inherent, where it is known Bluetooth transmits data repetitively in TDD scheme).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Hayashi et al. (US2003/0021288) and Aiello et al. (US2002/0018458)

Regarding claim 5, Fujioka and Hayashi et al. teach the limitation of claim 1.

But, Fujioka and Hayashi et al. do not expressly disclose wherein the slave having the service sequence determined is established in the frame unit for data transmission.

Aiello et al. teach using TDMA scheme in Bluetooth (Fig. 4, paragraphs 0022, 0063, 0073), where obviously the slave having the service sequence determined is established in the frame unit for data transmission.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of Fujioka, in order to efficiently provide each slave at least one transmit time slot for data communication.



6. Claims 6, 10-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073)

Regarding claim 6, Fujioka anticipates a method for communicating with seven or more terminals in a Bluetooth system having a master and a plurality of slaves (Fig. 1), the method comprising the steps of:

transmitting an access request message from a parked slave to the master so as to establish a communication connection therebetween (paragraph 0076);

receiving the access request message so as to calculate the number of the parked slave and determine a service sequence with respect to a predetermined reference (paragraph 0073, where obviously a FIFO scheme is applied to determine service sequence);

allocating an active member address according to the service sequence so as to establish the communication connection, and maintaining a non-connection slave to be in a sleep state in a sniff mode (Figs. 18 & 20, paragraphs 0076-0079); and

waking-up the slave of the sniff mode at the sniff interval time such that the active member address is used to complete data transmission with the master and return to a parking mode (Figs. 18 & 20, paragraphs 0076-0079, where Fig. 20 is about completing data transmission before turn into parking mode).

Note that in the embodiments of Fujioka, active member address equipped slaves (including slaves in active mode and sniff mode) are swapped with parking slaves according to predetermined service sequence based on FIFO record and received access request messages stored in memory. Thus, applicants' method is obviously taught by Fujioka.

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Regarding claim 10, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the service sequence is determined prioritizing the slave not completing the communication for a beacon interval duration earlier (paragraphs 0073, 0076-0079, where obviously slaves are prioritized before beacon interval).

Regarding claim 11, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the non-connection slave is given a sniff interval time and an active member address at a pre-scheduling duration (inherent, it is the definition of sniff mode).

Regarding claim 13, Fujioka teaches the limitation of claim 6.

Fujioka teaches wherein the service sequence is determined in a sequence of receiving the access request message (paragraphs 0073, 0076, FIFO).

Regarding claim 14, Fujioka teaches the limitation of claim 6.

Fujioka wherein data transmission between the master and the slave is such that until the slave given the active member address completes the data transmission, it is activated after the sniff interval time so as to repetitively transmit data (inherent, where it is known Bluetooth transmits data repetitively in TDD scheme).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Karaoguz (US2002/0159544).

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Regarding claim 7, Fujioka teaches the limitation of claim 6.

But, Fujioka does not expressly disclose wherein the step of transmitting the access request message from the parked slave is performed by a slotted collision sense multiple access (CSMA) way.

Karaoguz teaches utilizing CSMA in access request (paragraph 0064).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using CSMA in access request taught by Karaoguz into the method of Fujioka, in order to avoid congestion.

8. Claims 8-9, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Aiello et al. (US2002/0018458).

Regarding claim 8, Fujioka teaches the limitation of claim 6.

But, Fujioka do not expressly disclose wherein the step of transmitting the access request message from the parked slave is performed by a time division multiple access way.

However, it is known that Bluetooth applies TDD, which is an application of time-division multiplexing.

Aiello et al. teach using TDMA scheme in Bluetooth (paragraphs 0022, 0063, 0073), where obviously the step of transmitting the access request message from the parked slave is performed by a time division multiple access way.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of

Fujioka, in order to efficiently provide each parked slave at least one transmit time slot for data communication.

Regarding claim 9, Fujioka teaches the limitation of claim 6.

Fujioka and Aiello teach wherein data transmission between the master and the slave is such that un-parked slaves are all established in a frame and data is transmitted in a frame unit as explained in response to claim 12 below.

Regarding claim 12, Fujioka teaches the limitation of claim 6.

But Fujioka does not expressly disclose wherein data transmission between the master and the slave is such that after all of the slaves transmitting the access request message are un-parked, the un-parked slaves are established in the frame and all of the slaves transmit data by one time. It is known that in Bluetooth multiple slaves can be un-parked simultaneously (inherent in Bluetooth).

Aiello et al. teach using TDMA scheme in Bluetooth (Fig. 4, paragraphs 0022, 0063, 0073), where obviously the un-parked slaves are established in the frame and all of the slaves transmit data by one time after all of the slaves transmitting the access request message are un-parked. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing TDMA in Bluetooth taught by Aiello et al. into the method of Fujioka, in order to efficiently provide each slave at least one transmit time slot for data communication.

Regarding claim 16, Fujioka teaches the limitation of claim 6

Fujioka and Aiello et al. teach wherein the slave having the service sequence determined is established in the frame unit for data transmission (sequence in TDMA) as explained in response to claim 12 above.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (US2002/0193073) in view of Shorey et al. (US Patent#6807159).

Regarding claim 18, Fujioka teaches the limitation of claim 17.

But, Fujioka does not expressly disclose wherein the pre-scheduling unit automatically varies a packet depending on a data throughput communicating with the slave.

Shorey et al. teach wherein the pre-scheduling unit automatically varies a packet depending on a data throughput communicating with the slave (abstract, column 2 lines 45-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing adaptive polling scheme taught by Shorey et al. into the apparatus of Fujioka, in order to optimize power consumption while maintaining quality of service.

***Allowable Subject Matter***

10. Claims 4 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. The specific inherencies made in rejections above are based on Bluetooth Specification Version 1.1, such as in sections 9 and 10.8.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nay A. Maung/  
Supervisory Patent Examiner,  
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February 25, 2008  
/Z. L./  
Examiner, Art Unit 2618